

Causes of Chlamydial Infections and its Prevention

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DESCRIPTION

Chlamydia, or more specifically chlamydial infection, is a sexually transmitted disease caused by the bacterium *Chlamydia trachomatis*. Most infected people are asymptomatic. If symptoms do occur, they may not appear until several weeks after infection. The incubation period from exposure to manifestation of the ability to infect others is estimated at 2 to 6 weeks. Symptoms in women include discharge during urination and a burning sensation. Symptoms in men include discharge from the penis, a burning sensation when urinating, or pain and swelling in one or both testicles. The infection can spread to a woman's upper reproductive tract, causing pelvic inflammatory disease that can lead to future infertility and ectopic pregnancy.

Chlamydial infections can also occur in areas other than the genitals, such as the anus, eyes, throat, and lymph nodes. Repeated ocular chlamydial infections without treatment can lead to trachoma, a common cause of blindness in developing countries.

Chlamydia can be cured with antibiotics, typically using either azithromycin or doxycycline. Erythromycin or azithromycin are recommended for infants and during pregnancy. Sexual partners should also be treated, and infected people should be advised not to have intercourse for seven days until symptoms subside. Infected people should be tested for gonorrhea, syphilis and HIV. After treatment, we should be tested again 3 months later.

Chlamydia pneumoniae are small (0.2-1 μ m) gram-negative bacteria that undergo multiple transformations during their life cycle. It exists as an Elementary Body (EB) between hosts. Although EBs are not biologically active, they are resistant to environmental stress and can survive outside the host for a limited amount of time. EB travels in small droplets from an infected person to the lungs of an uninfected person and causes infection. When EBs

enters the lungs, they are taken up by cells within sacs called endosomes through a process called phagocytosis. However, EBs are not destroyed by fusion with lysosomes, as is typical for phagocytosed material. Instead, it transforms into the Reticular formation (RB) and initiates replication within the endosome. The web body must use part of the host's cellular metabolism to complete replication. The reticular bodies are then converted back to basal bodies and released into the lungs, often after causing host cell death.

There is currently no vaccine against *Chlamydia pneumoniae*. Identification of immunogenic antigens is essential for the construction of effective subunit vaccines against *C. pneumoniae* infection. Additionally, there is a general shortage of facilities worldwide that can identify/diagnose *C. pneumoniae*.

Chlamydia can be in the body for a long time with no signs. Possible symptoms are:

- In men when urinating, mucus from the penis, fever, swelling of the scrotum, or pain around the bladder, groin, or rectum.
- In women when giving birth-painful urination, discharge, fever, chills, vomiting, abnormal menstrual bleeding, intercourse or abdominal pain.

Genital chlamydial infections in the United States are clearly epidemic and the most commonly reported disease in the country. The Centers for Disease Control (CDC) estimates that 2.8 million people are infected each year in the United States alone, and from 1986 to 2005, reported infection rates increased from 35.2 to 332.6 per 100,000 people. This increase may be due in part to increased screening and more sensitive diagnostic techniques. It's virtually impossible to know the global infection rate, but it's clearly distributed around the world, and likely a similar rate in the United States.

Citation: Rahnama M (2022) Causes of Chlamydial Infection and its Prevention. J Bacteriol Parasito. S19:026.

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Received: 28-Nov-2022, Manuscript No. JBP-23-19737; Editor assigned: 01-Dec-2022, PreQC No. JBP-23-19737 (PQ); Reviewed: 15-Dec-2022, QC No. JBP-23-19737; Revised: 22-Dec-2022, Manuscript No. JBP-23-19737 (R); Published: 29-Dec-2022, DOI: 10.35248/2155-9597.22.S19.026.